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Auricular Fibrillation in Horses

By

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In the course of an investigation into the electrocardiogram of the horse, the following cases of clinical interest were encountered.

Auricular fibrillation is a cardiac arrhythmia which appears to be relatively common in horses. In a random series of 130 animals examined, 17 cases of cardiac arrhythmia were encountered. Of these, five were cases of auricular fibrillation. Evidence is presented to show that diagnosis is possible on purely clinical findings. Lewis (1912) first recognised this condition in the horse. He found each case characterised by an absolute irregularity of heart rhythm and by distress on exertion. The electrocardiogram was similar to that found in auricular fibrillation in man. In two of his cases he opened the chest under artificial respiration and observed the fibrillary movement of the auricles, and the irregular responses of the ventricle. He found no evidence of valvular lesions in any of his cases. From his experience he concluded that in animals as in man, a condition of chronic fibrillation existed. *Post-mortem* and histologic examinations of the hearts from these cases were carried out by Cohn (1913) who found no abnormality of SA and AV nodes and no lesion in the specific conducting tissue.

Bang, Petersen & Petersen (1915) gave an account of two cases of abnormal heart action in the horse, which were accompanied by irregularity of rhythm, marked bradycardia, jugular pulsation, and distress on exertion. From the venous tracing published, it was possible that their cases were auricular fibrillation with high grade AV block.

Roos (1924) gave an account of this condition in three animals. The features common to each case were the absolute irregularity of rhythm, relatively slow cardiac action and distress on exertion. The accompanying electrocardiogram was essentially similar to that obtaining in auricular fibrillation in man. He pointed out that auricular fibrillation was not uncommon in the horse, and was usually accompanied by slow ventricular action.

McCunn (1934) referred to one case of auricular fibrillation but presented no evidence to support his diagnosis.

Case I

Black Clydesdale Gelding. Age seven years. During an examination for soundness, an irregularity of the heart and pulse rhythm was noted. The horse was otherwise sound, in good condition and had given no reason to suspect heart trouble. His previous work had been light. There was no history of oedema, nor was jugular pulsation evident. The owner stated that the horse had always done his work but tended to be sluggish and lazy.

The E.C.G. gave a typical picture of auricular fibrillation as found in man. The animal was then lunged for ten minutes and re-examined. The ventricular rate was increased but the arrhythmia was still evident.

The horse was returned to his former owners and resumed his original work. Over a period of nine months observation he has occasioned no trouble, in spite of the persistence of the fibrillation.

Case II

Brown Clydesdale Gelding. Age ten years. This horse had always been inclined to stop for short periods when working, but had never refused to pull a load. After half a day's exceptionally heavy work, the animal refused to pull, and was returned to the stable. The next day he refused food and was unfit for work. Marked oedema developed along sternum and abdomen, and when examined by the veterinary surgeon the heart action was found to be extremely irregular. The animal was rested from work and later put to grass. When seen by us a year later, the animal was in good condition, no oedema being present. Jugular pulsation was evident, and the pulse and heart extremely irregular in rhythm.

The E.C.G. showed fibrillation of the auricles. The only effect of ten minutes' exercise was to increase the ventricular rate, the arrhythmia still persisting.

Case III

Light Brown Clydesdale Gelding. Age 13 years. No history was available as the animal was about to be slaughtered. The animal was in fair condition with only a slight venous pulsation, but the rhythm of both pulse beats and heart sounds was extremely irregular.

E.C.G. showed typical auricular fibrillation.

Case IV

Brown Clydesdale Mare. Age eight and a half years. In very good condition, with no history of illness over the last six years. The mare had suddenly refused food that morning, and was found standing with tail raised and hind legs extended as if to urinate. The animal appeared depressed, the eye dull and congested, but the temperature and respirations were normal. There was no venous pulsation, but marked irregularity of rhythm in both pulse beat and heart sounds. Next day the mare began eating and has since continued to do so. Light work did not distress the animal, but she was incapable of the usual farm work. (It is interesting to note that this case may have started spontaneously, since the mare was standing in the stall, unworked, for several days prior to being noticed unwell.)

Case V

Brown Thoroughbred Gelding. Age 15 years. An experienced steeplechaser roughed out at grass during the war. One year prior to examination had suffered a bad attack of 'flu, and since then had gradually lost condition. The horse would trot for as long as desired, but pulled up blowing if cantered or galloped, and had collapsed on several occasions after over-exertion. On examination, animal was thin and in poor condition. No oedema was present, and only slight jugular pulsation. The arterial pulse was of medium quality but extremely irregular in rhythm. The arrhythmia was also very evident on auscultation. The E.C.G. showed the features typical of auricular fibrillation.

Summary of Clinical Evidence

(*a*) *Pulse.*—Generally of good quality but extremely irregular in rhythm. The irregularity was complete in that there was no relation in time intervals between successive beats. Long pauses when no beat was felt were followed by isolated beats at irregular intervals, or by short paroxysms of five or six beats in rapid succession. The rate of these short fast periods varied from 70 to 90 per minute, but if counted over a full minute the pulse rate did not usually exceed 45 beats per minute. The strength of the pulse beat was sometimes felt to decline during these paroxysms. In all of our cases no heart sounds were heard during the long pulse pauses.

(*b*) *Jugular Pulsation.*—Irregularly present. When seen it usually consisted of a marked venous swelling, occurring irregularly and collapsing suddenly. The jugular pulsation was more marked in those cases where long diastoles were frequent.

(*c*) *Heart Sounds.*—Again complete irregularity of rhythm was the dominant feature. The first and second heart sounds were distinct and followed each other in normal sequence. There was no other evidence of an auricular sound, which in the normal horse is quite distinct. The ventricular systoles succeeded each other at totally irregular intervals. Long pauses when no sound was heard, sometimes up to six seconds duration, short rapid cycles, or irregularly spaced beats could also be recognised.

Ventricular systoles as determined by auscultation were reflected in the pulse, except at the termination of a rapid paroxysm, when occasionally the last ventricular systole did not eject sufficient blood to cause a palpable pulse beat.

(*d*) *Electrocardiogram.*—The following features are evident in every one of our cases of auricular fibrillation.

(*i*) Complete irregularity of ventricular rhythm.

(*ii*) Absence of P waves.

(*iii*) Presence of fine undulations replacing the P wave, and seen especially in leads II and III.

(*iv*) QRS complex relatively normal in itself.

Electrocardiograms from two cases are shown overleaf.

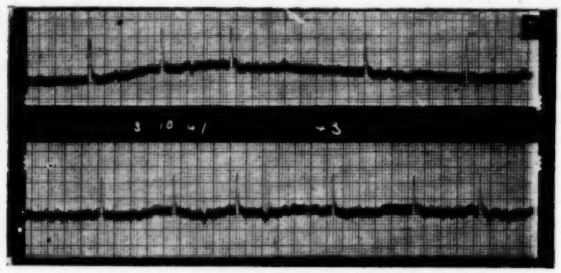

Fig. 1.—Case II. Lead III. The lower recording taken during a paroxysm shows successive ventricular rates of 68, 79, 50, 60, 74 beats per minute.

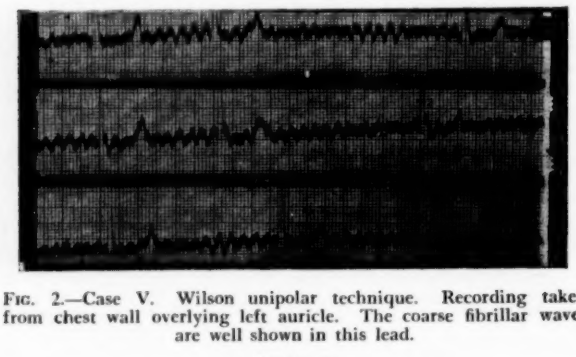

Fig. 2.—Case V. Wilson unipolar technique. Recording taken from chest wall overlying left auricle. The coarse fibrillar waves are well shown in this lead.

Prognosis

Here one must consider the type of animal, the work performed, and the efficiency of the ventricular action.

From our series it would seem that in draught animals, if condition was being maintained, oedema and marked jugular pulsation were absent, and the pulse was of good quality, then one could with reasonable confidence prescribe light work.

In riding horses, and cases where condition was being lost and oedema present, the prognosis was hopeless. On being exerted circulatory failure might ensue, with resultant collapse and danger to rider and driver. In none of our cases has the fibrillation ceased spontaneously.

Discussion

That auricular fibrillation occurred in horses and gave an E.C.G. similar to that obtained from man was shown by Lewis and confirmed experimentally. Lewis believed the disease to be rare in horses, whereas Roos found it not uncommon. The findings presented here are in agreement with the latter author. Further support comes from study of older veterinary articles and writings which refer to "tumultuous beating of the heart" and "extreme irregularity of rhythm." It is probable that many of these cases were examples of auricular fibrillation.

Diagnosis can be made on clinical evidence alone, the absolute irregularity of rhythm being the outstanding features. The jugular pulse if present, the low cardiac rate allied to distress on exertion are also useful. Multiple auricular extra-systoles can be eliminated by the exercise test, while tachycardia from fear or nervousness disappears when the animal gains confidence and settles down. The condition differs from that found in man in that the rhythm though irregular is rarely elevated above the normal rate. Also long periods of cardiac standstill can occur without affecting the animal's behaviour.

The underlying cause of auricular fibrillation is obscure. One case was related to overwork, one to an attack of influenza, while two seemed spontaneous in origin. The strong vagal tone normally found in the horse may be a precipitating factor, possibly allied to anoxaemia of the myocardium. In this respect the experimental work of Smith & Wilson (1944) is interesting, as they state, "In conditions associated with anoxaemia of cardiac muscle, normal vagal stimuli might be so amplified as to produce fibrillation."

Summary

(i) A description of five cases of auricular fibrillation is given.
(ii) The E.C.G. of two cases are shown.
(iii) Prognosis is based on the condition of the animal and the type of work likely to be undergone.

The Trypanocidal Effects of Dimidium Bromide (Phenanthridinium 1553) on Trypanosoma simiae in Domestic Pigs

By

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The trypanocidal effect of dimidium bromide on *Trypanosoma congolense* infections in bovines is now well established. Stewart (1947) has shown that this drug is also effective in *T. congolense* infections in pigs. *Trypanosoma simiae*, Bruce *et al.*, is placed in the *T. congolense* group of trypanosomes on morphological grounds (Hoare, 1936, 1938) although it differs markedly from *T. congolense* in its pathogenicity for domestic animals and is non-infective for white mice, rats and guinea-pigs. The effect of dimidium bromide on *T. simiae* infections may therefore be of some interest.

Pathogenicity of *T. simiae* in Pigs in Uganda

T. simiae infections in domestic pigs in Uganda is a fulminating, rapidly fatal disease similar to that already described by Bruce *et al.* (1913) in Nyasaland; Walravens (1923) and Schewetz (1930) in the Belgian Congo; Hornby (1936) in Tanganyika, and Stewart (1936) in the Gold Coast. In the most recent outbreak investigated in Uganda in August, 1946, pigs were dying suddenly, with few *ante-mortem* symptoms, at the rate of two to three head per week. Altogether 20 pigs out of a herd of 55, died during July and August, 1946. Two infected pigs were brought from this herd to the laboratory on August 17th, 1946. One, No. 2951, although in good condition on the day of arrival, had a high temperature and showed numerous *T. simiae* in the peripheral blood. Within 48 hours it became dull, listless, and with loss of appetite it rapidly lost condition, and died suddenly on the sixth day of observation with trypanosomes swarming in the peripheral blood. Pig 2963, subinoculated with 3 c.c. citrated blood drawn from pig 2951 two days before death, showed *T. simiae* in the blood smears five days later and died on the seventh day. The temperature reactions and course of the disease in these two pigs is shown in Fig. 1.

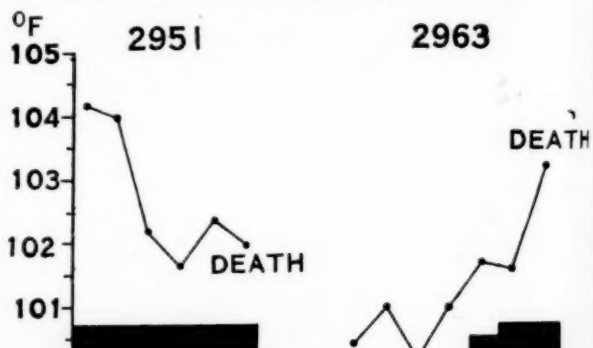

Fig. 1.—Pig 2951, a naturally infected untreated case, the date of infection unknown. Pig 2963, an artificially infected untreated case.

Key to Temperature Charts

■ = *T. simiae* numerous in blood smears.
▬ = *T. simiae* scanty in blood smears.
↑ = Pig treated with dimidium bromide 1 mgm. per kg.
↑ ↑ = Pig treated with dimidium bromide 2 mgm. per kg.
↑ ↑ ↑ = Pig treated with dimidium bromide 3 mgm. per kg.

Acknowledgments.—Our thanks are due to Mr. Begg of Strathaven, Mr. Mackie of Kirkliston, and Mr. Gold of Redditch for their interest and help in collecting the histories and records.

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Treatment of Natural Infections with Dimidium Bromide

One naturally infected case of *T. simiae* infection was treated at the laboratory. The second pig obtained from the infected herd, No. 2952, was also in good condition on arrival although showing a temperature with *T. simiae* numerous in blood smears. It was treated immediately with dimidium bromide at the rate of 2 mgm. per kg. intramuscularly. The course of the disease over a period of 40 weeks is shown in Fig. 2.

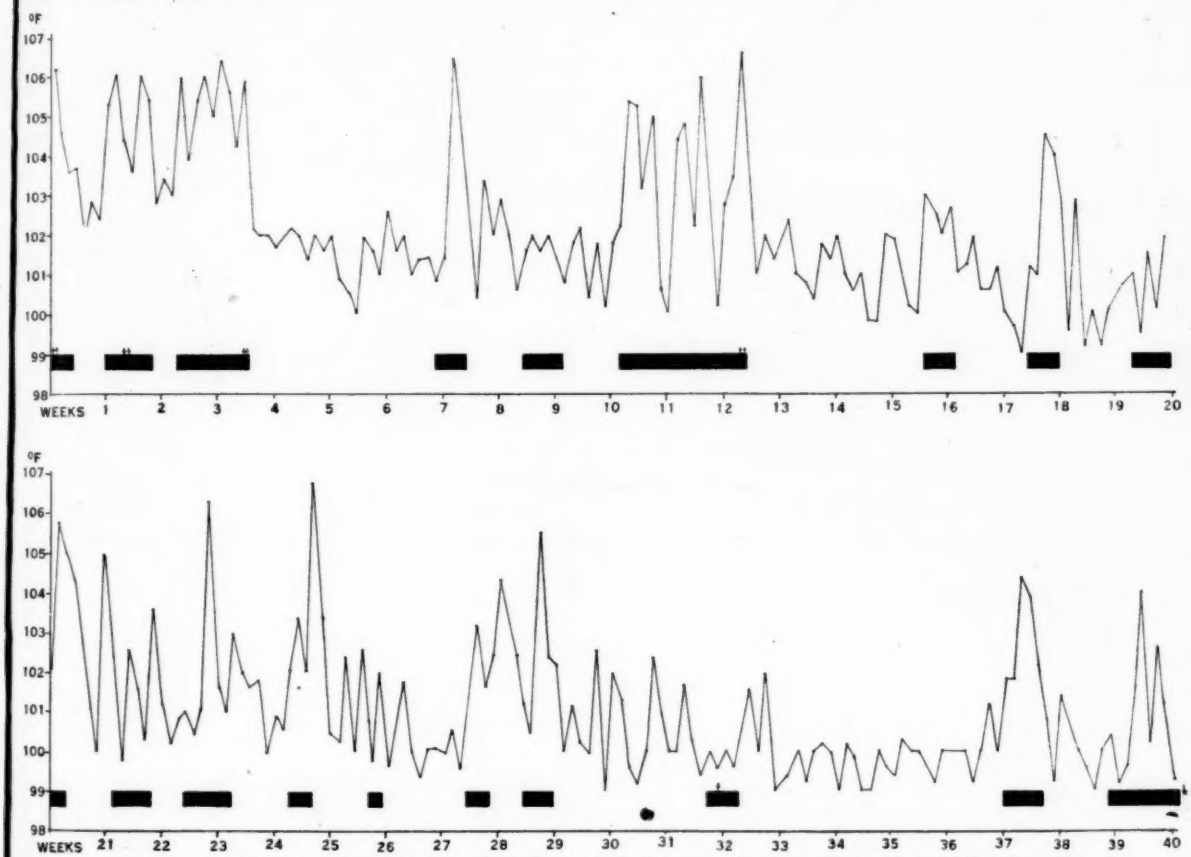

Fig. 2.—Pig 2952, showing a chronic relapsing *T. simiae* infection after treatment with dimidium bromide.

Following the initial treatment, and following the treatment of the first relapse, trypanosomes did not disappear until the third and fourth day after treatment and relapses occurred five and four days later respectively. During the second relapse the infection was allowed to develop for nine days before treatment and the response was more dramatic, as trypanosomes disappeared from the blood stream within 24 hours, the blood remained negative for 23 days, and there was considerable improvement in condition. The pig recovered from the third and fourth relapses without treatment but the fifth relapse on the 11th week threatened to be fatal as the pig was rapidly losing condition and the anaemia was extreme with normoblasts and reticulocytes present in considerable numbers and many erythrocytes showing punctate basophilia and polychromasia. Treatment of this relapse after trypanosomes had been present for 16 consecutive days was again dramatic since the trypanosomes disappeared from the blood within 24 hours and remained absent for 22 days. Subsequently a chronic relapsing type of disease developed, 11 relapses in all occurring between the 16th and 32nd week. Except during the fourth relapse on the ninth week, the appearance of trypanosomes in the blood was always marked by a very definite rise in temperature, which was more marked on the second to fifth days. Occasionally it was only seen on the last day if the relapse was a short one. During the long relapse of 16 days which occurred on the 10th to 13th weeks, the fever was broken into three distinct phases by a fall in temperature on the seventh and 13th days. The fifth and final treatment with dimidium bromide, given at a reduced dose of 1 mgm. per kg. on the 32nd week, caused the trypanosomes to disappear within 72 hours and remain absent for 33 days, the longest period of remission throughout the course of the disease. No treatment was given during the 17th and final relapse and the pig was allowed to die on the 41st week as further experimental work was not considered necessary. During the 281 days the pig was observed, trypanosomes were present in the blood for 102 days and absent for 179 days.

Treatment of Artificially Infected Pigs

(*a*) *Pig to Pig Passage.*

Since *T. simiae* was being maintained in pig 2952 without great difficulty, an opportunity was taken to infect other pigs with this strain to test the pathogenicity of *T. simiae* after prolonged residence in the pig and also to carry out further therapeutic tests with dimidium bromide.

Pig 3003 was infected with blood drawn from pig 2952 during the 29th week of infection. Sub-inoculations of 5 c.c. citrated blood were made on two successive days, the first when trypanosomes were scanty in the peripheral blood of pig 2952 and the second when trypanosomes were numerous. The course of the infection is shown in Fig. 3. (overleaf).

This pig was treated with dimidium bromide at 2 mgm. per kg. on the 13th day but was found dead on the 14th day. The lack of success was probably due to the heavy original inoculum of trypanosomes causing a fulminating infection which the delayed treatment was unable to check.

The therapeutic results with pig 3010 were more encouraging. Blood drawn from pig 2952 on the 32nd week of infection was used as the infective inoculum, two sub-inoculations of 0·2 c.c. citrated blood being made on the first and third days, *T. simiae* being scanty in the donor's blood on both occasions. The course of the infection is shown in Fig. 4. (overleaf).

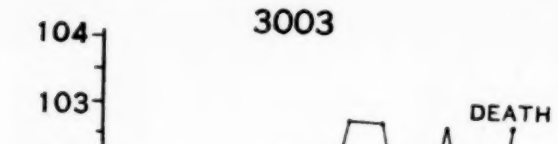

Fig. 3.—Pig 3003, infected with *T. simiae* by inoculation from pig 2952 and treated late with dimidium bromide at 2 mgm. per kg.

The early treatment with dimidium bromide at 1 mgm. per kg. on the first appearance of trypanosomes on the 16th day appeared to check this attack as trypanosomes never became really numerous in the peripheral blood and there was little temperature reaction. The first relapse was allowed to develop and was treated at 1 mgm. per kg. after trypanosomes had been present for 17 days as the pig was then in a seriously debilitated condition. This treatment gave a relatively long period of remission. In the relapse beginning on the 63rd day, the trypanosomes rapidly became numerous in the blood, the pig appeared to have lost all powers of resistance, and treatment at 2 mgm. per kg. on the 65th day did not retard development of the trypanosomes or prevent death on the 67th day.

Pig 3009 received 0·5 c.c. citrated blood from pig 3010, the blood being drawn immediately after death of the latter pig. The course of the infection is shown in Fig. 5.

Dimidium bromide was given in this case at the rate of 2 mgm. per kg. and the first and second treatments appeared to have considerable trypanocidal effect, but the second relapse, developing on the seventh week, was fulminating and fatal in spite of treatment.

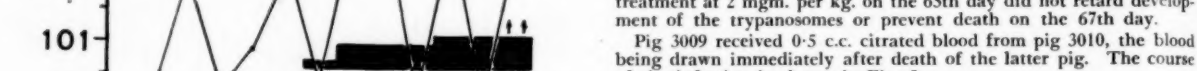

Fig. 4.—Pig 3010, infected with *T. simiae* by sub-inoculation from pig 2952 and treated on three occasions with dimidium bromide.

Fig. 5.—Pig 3009, infected with *T. simiae* by sub-inoculation from pig 3010 and treated on three occasions with dimidium bromide.

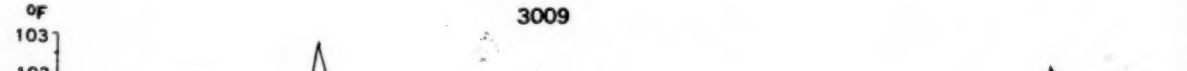

Fig. 6.—Pig 2974, infected with *T. simiae* by sub-inoculation from a sheep and treated with dimidium bromide at 3 mgm. per kg.

(*b*) *Pig—Sheep—Pig Passage.*

In addition to the naturally infected strain of *T. simiae* maintained in pig 2952, an attempt was made to maintain a strain of *T. simiae* in sheep. Two sheep, Nos. 2941 and 2942, were infected with blood from pig 2951. *T. simiae* proved non-pathogenic for these sheep and trypanosomes were found circulating in considerable numbers for irregular periods from the second to 12th week after infection. Sub-inoculation from sheep to pig proved infective, but sub-inoculation from sheep to sheep or sheep to goats failed.

Pig 2974 received 5 c.c. whole blood from sheep 2941, 22 days after infection and when trypanosomes could not be found in stained blood smears. The course of the infection is shown in Fig. 6.

The incubation period of 20 days was the longest on our records. Treatment with dimidium bromide at 3 mgm. per kg. appeared to check the first attack but relapse rapidly followed relapse and the second treatment on the 59th day did not prevent death on the 60th day.

Pig 2964 received 5 c.c. whole blood from sheep 2941, 36 days after the sheep had been infected and when trypanosomes were scanty in blood smears. The inoculum was therefore considerably heavier than in the case of pig 2974 and the incubation period was very much shorter (Fig. 7).

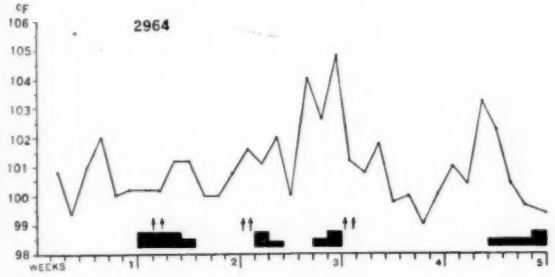

Fig. 7.—Pig 2964, infected with *T. simiae* ex sheep and treated at weekly intervals with dimidium bromide at 2 mgm. per kg.

Three treatments at weekly intervals of dimidium bromide at 2 mgm. per kg. did not sterilise the blood of trypanosomes or prevent death on the 36th day.

DISCUSSION

It is evident that dimidium bromide has only a limited trypanocidal effect on *T. simiae*. A *therapia sterilisans magna* was never achieved; the most that was accomplished was a check on trypanosome development and a prolongation of life of infected pigs.

From the results achieved with the artificially infected pigs, it was obvious that dimidium bromide only appreciably prolonged life in the pigs which received the lightest infection and the earliest treatment. The results with the three pigs showing the longest incubation periods were as follows:—

Pig number	Incubation period	First treatment	Death
3010	15 days	1 mgm. per kg. on day tryps first appeared	68th day
3009	10 „	2 mgm. per kg. on second day tryps present	52nd „
2974	20 „	3 mgm. per kg. second day tryps present	60th „

The actual rate of dosage of dimidium bromide did not appear to have any decisive effect.

With pigs 3003 and 2964 the inoculum was heavy in each case and the incubation period was only six days. The early treatment in pig 2964 prolonged life until 36 days after infection whereas the delayed treatment in pig 3003 did not prevent death on the 14th day.

It might, therefore, be assumed that the original natural infection in pig 2952 was mild and that the first treatment was given soon after *T. simiae* had appeared in the blood stream. The fortunate timing of the third, fourth and fifth treatments, which gave a remission of 23, 22 and 33 days respectively, was, no doubt, of considerable assistance as during these relatively prolonged periods when trypanosomes were absent the pig gained markedly in condition and was more able to withstand subsequent relapses.

It is difficult to study the immunological reactions of *T. simiae* in the absence of a curative drug and the impossibility of maintaining strains in small laboratory animals. It is, however, evident from the rapid development of trypanosomes in the blood and the rapidly fatal course of untreated infections that the domestic pig has little natural resistance to *T. simiae*. Either the production of antibodies is stimulated slowly or not at all, or the antigenic constitution of the trypanosomes is so labile that the production of a serviceable immunity is difficult. In pig 2952 the three early treatments with the consequent check in the development of *T. simiae* appeared to favour the development of some immunity reaction as this pig developed sufficient powers of resistance to overcome repeated relapses over a considerable period. In the artificially infected pigs, especially in pigs 3010, 3009 and 2974, a crisis appeared to develop between the seventh and ninth weeks after infection when all resistance to the trypanosome infection was lost and a fatal fulminating attack developed which was not checked by treatment with dimidium bromide.

In pig 2952, the effectiveness of the fifth treatment at 1 mgm. per kg. during the 32nd week of infection indicated that the trypanosome had not become drug resistant. The failure of the third treatment in pig 3010 might suggest drug resistance but this was disproved by the behaviour of the trypanosome of dimidium bromide when transferred to pig 3009. No ill-effects were noticed in pigs after receiving repeated treatments with dimidium bromide.

Summary

Trypanosoma simiae infections are highly pathogenic for domestic pigs in Uganda.

When a naturally infected pig was treated with dimidium bromide the disease became a chronic relapsing type and with treatment on the first, second, fourth, 13th and 32nd weeks, the pig lived for 40 weeks.

In artificially infected cases the life of the pig was only prolonged when the infective inoculum contained a relatively small number of trypanosomes and treatment with dimidium bromide was given on the first or second day trypanosomes appeared in the blood.

Strains of *T. simiae* maintained in sheep proved non-pathogenic for sheep but highly pathogenic for pigs.

There was no evidence that the trypanosome became drug-resistant.

Pigs appeared to tolerate repeated treatments with dimidium bromide.

I wish to record my thanks to the Director of Veterinary Services, Uganda, for permission to carry out this work and publish this paper.

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RETIREMENT OF DR. GEOFFREY VEVERS

Appointment of Mr. G. S. Cansdale as Zoo Superintendent

The Zoological Society of London announces, with regret, that Dr. Geoffrey Vevers, superintendent of the Regent's Park and Whipsnade zoos, is to retire at the end of the year for health reasons. Dr. Vevers, who is 58, joined the Zoological Society in 1919 as honorary parasitologist, and in 1923 he became superintendent. He was a prime mover in the buying and developing of Whipsnade, and since 1945 has been restocking the Zoo after war-time depletions. When he leaves at the end of the year his wife, who has worked at Regent's Park zoo for 24 years as the superintendent's secretary, will also retire.

The assistant superintendent, Mr. G. S. Cansdale, is to succeed Dr. Vevers as superintendent.

The Farrowing Crate

P. L. SHANKS, B.SC. (AGRIC.), M.R.C.V.S.
LEEDS

Deaths from crushing are responsible for serious losses amongst young pigs during their first week of life. Farrowing pens with farrowing rails are generally advocated and widely used, but are not completely satisfactory nor is the elimination of heavy or careless sows. The farrowing crate would appear to be nearer a solution of the problem than the common recommendations and in practice has proved most efficient.

The farrowing crate is simple to construct and suitable wood should be available on most farms. It is a box arrangement for the sow with "nest" boxes on either side at ground level for the young pigs.

The following is a description of a crate which could be used as a guide for anyone wishing to make one:—

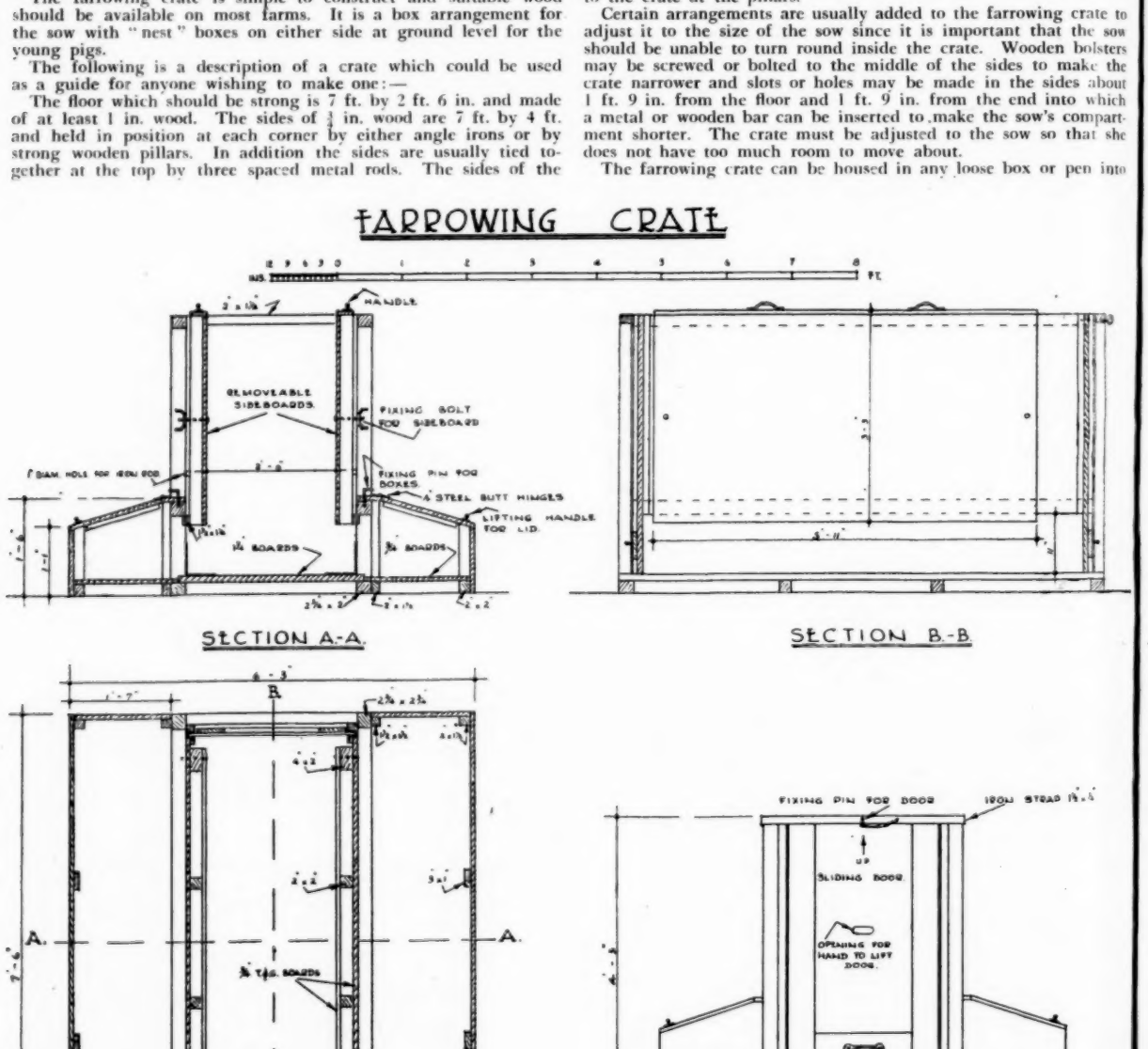
The floor which should be strong is 7 ft. by 2 ft. 6 in. and made of at least 1 in. wood. The sides of ¾ in. wood are 7 ft. by 4 ft. and held in position at each corner by either angle irons or by strong wooden pillars. In addition the sides are usually tied together at the top by three spaced metal rods. The sides of the crate do not extend to the floor of the box but stop 9 in. short so that space is left by which the young pigs have free access between the sow and the "nest" boxes.

The ends of the crate which are constructed to form either sliding or hinged doors are approximately 4 ft. by 2 ft. 6 in. Sliding doors are preferable since hinges are liable to be readily damaged. Some crates have one end permanently closed, but there are obvious advantages in having both ends capable of opening.

The "nest" boxes are 7 ft. long by 1 ft. 4 in. wide with a hinged roof sloping from 10 in. high at the back to 8 in. high at the front. There is one at each side and they rest on the floor and are hooked to the crate at the pillars.

Certain arrangements are usually added to the farrowing crate to adjust it to the size of the sow since it is important that the sow should be unable to turn round inside the crate. Wooden bolsters may be screwed or bolted to the middle of the sides to make the crate narrower and slots or holes may be made in the sides about 1 ft. 9 in. from the floor and 1 ft. 9 in. from the end into which a metal or wooden bar can be inserted to make the sow's compartment shorter. The crate must be adjusted to the sow so that she does not have too much room to move about.

The farrowing crate can be housed in any loose box or pen into



which the sow should be put a few days before parturition is due. If unaccustomed to a crate she should be driven into it once or twice and left for a short time to acclimatise her to her strange surroundings. The majority of sows give no difficulty, and sows which have been farrowed previously in a crate accept the routine without resistance. Usually no trouble is experienced in driving the sow into the crate if both ends are left open, and the front is closed as soon as she has entered.

Parturition is allowed to take place without the presence of the attendant. This should cause no anxiety to the owner since it is rare for a sow to have difficulty at farrowing. Short cut straw or chaff should be used in the "nest" boxes. The young pigs quickly realise the warmth and protection provided by the boxes and can soon be found lying contentedly in them when not suckling.

The sow should be allowed out of the crate twice daily to feed and pass excrement. Generally the crates are used only for the first week or ten days by which time the young pigs are strong enough to get out of the way of the sow when she rises or lies down. They could be left in longer if circumstances required it.

Advantages of the farrowing crate.—Besides the main asset of avoiding crushing there is the important point, especially in winter time, that the crates are warmer than ordinary farrowing pens; where a considerable number of sows are kept there is the saving of labour and time of employing an attendant to remove the young pigs to safety immediately they are born; in the case of sows which are liable to savage their young the crate prevents this completely; young pigs in the nest boxes can be easily caught and examined without interference from the sow; should a sow require to be handled at or after parturition she is easily examined in the crate without risk of injury to the attendant. Apart from its use during farrowing, the crate can be used as stocks for the handling of large pigs, *e.g.*, tuberculin testing, nose ringing, dosing with medicine, etc. Finally it could be used as a service crate if the necessity arose.

After use the crate should be thoroughly washed and disinfected before being again occupied.

Trivia

"Having been called to see Billy Joe's cow (a week *post partum* and the nearest veterinary surgeon 200 miles away), I asked what was wrong," writes a *Lancet* "Peripatetic Correspondent" in a recent issue and proceeds: "'She's running a temperature, Doctor,' was the reply. I immediately had visions of foul discharge, etc., and wondered how one would do a D and C on a cow. However, I asked what was the normal temperature of a cow and what was the temperature of my new patient. 'Well, Doctor,' I was told, 'you tell it by the feel of its horns. They feel hot and they shouldn't.' Rather shaken by this and wondering what one did in hornless breeds, I went along to see the animal. There seemed to be no vaginal discharge or cough, in fact, no reason at all for the pyrexia. I decided to put the cow on sulphadiazine, but what dosage? I asked what the animal weighed. 'It must be about 370 lb. dressed' was the reply. Further questioning revealed this as about 500 lb. live weight. After some arithmetic, and allowing a bit for unknown idiosyncrasies, I gave 4 g. statim, followed by 2 g. four-hourly. I also instructed the owner to wire the veterinary surgeon. Next day we received a reply. 'Stop sulphadiazine. Give pound of Epsom salts.' In my worry I had forgotten that the commonest cause of puerperal pyrexia is constipation.

"My fee will be a cut from the calf, which will be ready for the table in eight weeks' time."

. . . . .

A county agent, after addressing a group of poultry farmers in a small town, was prevailed upon by one lady to inspect the pen of White Rocks. In with her flock of White Rock chickens was a New Hampshire Red cock.

"But my dear lady," explained the expert, aghast, "if you wish to keep these White Rocks pure you must get that Red rooster out of here!"

"Oh, I've taken care of that," she replied quickly, "by removing him every night."—*Dog World.*

* * * * *

Carnarvonshire County Council has appointed a sub-committee to investigate the possibility of acquiring Lord Newborough's 100-room mansion at Glynllivon Park, near Carnarvon, for use as an agricultural college, or for other educational or social purposes. Lord Newborough, who is the fifth baron, said that he is leaving the family residence next February because of shortage of staff and crippling taxation. The mansion, with its 1,000-acre park, has been the family's ancestral home since the early 15th century.—*Farmer and Stock-Breeder.*

CLINICAL COMMUNICATION

A Case of Phenothiazine Poisoning in Young Bovines

J. BOLTON, M.R.C.V.S.

Gosforth

The owner dosed 28 Shorthorn bullocks and heifers with a well-known proprietary brand of phenothiazine in the early afternoon of January 26th. Ten of the animals were from six months to 12 months old; 18 were between 12 months and two years. The animals were in poor condition and were being fed on turnips, straw, hay and oats. The dosage was that recommended by the suppliers, *viz.*, 60 grammes for the lower age group and 90 grammes for the older group, each dose to be administered in half a pint of cold water. Each dose was measured individually by means of a container supplied with the pack.

On the following morning 20 animals showed symptoms of poisoning; 13 of these were severe (six in the upper age group; seven in the lower).

The symptoms varied from coma and prostration in extreme cases to dullness and weakness of the hind quarters in the less severely affected. In all obviously affected animals the temperature was subnormal, ranging from 98° F. to 100° F. Constipation and tympany occurred in almost all the affected animals. Respirations were normal except where tympany was extreme. The buccal mucosa was pallid and dirty. Some animals which were on their feet suddenly fell while being examined and were unable to rise. One six-month-old heifer had an eversion of the rectal mucosa.

Treatment, which was ineffectual, consisted of glucose intravenously and subcutaneously.

At 6 p.m. on the same day the owner reported improvement in all except one of the treated animals. Some which had been prostrate were able to sit up or even rise. Most marked and rapid improvement occurred in three six-months-old heifers, among them being that with the rectal eversion. On the following morning two animals had died and one was moribund. Six were still seriously affected. Four, all in the younger age group, had apparently recovered. It may be added that on this, the second day of my attendance, I observed marked red staining of the hair of one dead bullock. Staining was not noted on any of the other animals and the urine was almost clear when passed.

The *post-mortem* features were pale, anaemic viscera; distended gall bladders; the urine amber coloured and the lower bowel filled with boluses of hard-coated faeces. The carcases had a peculiar odour which seemed to the writer faintly to resemble phenol.

By January 29th three more animals had died, to be followed later by a further two—making seven fatal cases in all.

Questions and Answers

The submission of questions for inclusion in this column will be welcomed: they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.

All communications should be addressed to the Editor.

Field Examination of Stallion Semen

Q. CCLXIV.—*Will you please give, briefly, details of field examinations of samples of semen from a thoroughbred stallion?*

A.—For the estimation of fertility, samples of semen should be collected by means of the artificial vagina.

Immediately after collection the viscous vesicular secretion should be separated from the sperm-serum and the volume of the latter measured. The motility, density and percentage of living spermatozoa are estimated by examining microscopically thin smears under a cover-slip using a 2/3 objective. Care must be taken that the temperature does not fall so far below 37° C. as to interfere with motility.

The volume and density of the semen varies considerably, but for fertility the total number of spermatozoa should exceed 2,000 millions and more than 60 per cent. of spermatozoa should be actively motile. Small numbers of abnormal spermatozoa appear to have little bearing on fertility.

It is to be emphasised that reliable results can be obtained only by visual examinations under field conditions after some experience, and that at first more accurate estimations of density, etc., should be made.

Some stallions will refuse artificial service, and in such cases, samples must be taken from the vagina of the mare after natural service. These are of little value, however, as they show merely whether or not some living spermatozoa have been ejaculated.

Brown Nose in Cattle

Q. CCLXV.—*I have recently come across several individual cases of a condition in cattle which appears to be of an anaphylactic nature. The symptoms are as follows: The animal becomes quite suddenly and acutely ill, with a high temperature, rapid pulse and respirations. There is considerable lachrymal and nasal discharge, usually of a muco-purulent type. There also appears a brownish discoloration of the muzzle and sometimes of the cornea. The skin of the muzzle usually sloughs and recovery generally takes place in five to seven days. I would be glad of information as to the nature of this condition.*

A.—Although this condition ("brown nose") has received but scanty notice in modern text-books, it has been recognised by clinicians for many years. The aetiology is still somewhat obscure but various suggestions have been put forward from time to time. Harvey regarded it as an anaphylactic condition and claimed success in treatment by the oral administration of large doses of brewer's yeast. Smythe associated it with sensitisation to pollen, particularly that of certain members of the Ranunculaceae. The respiratory symptoms are sometimes very acute and are followed by discoloration and drying of the skin of the muzzle and of the teats from which the skin often peels off like the fingers of a glove. The perineal and vulval skin may also show similar sloughing. In the south-western counties the condition is fairly common during the summer months and fatal cases are not unknown. These are usually associated with an accompanying enteritis and signs of cerebral disorder. In the Midlands and northern counties, the symptoms are seldom so severe and recovery usually takes place spontaneously. It is seldom that more than one animal in a herd is affected at one time but the condition may recur in subsequent years.

. . . . . .

Are Bones of Poultry, etc., Dangerous Food for Dogs?

Q. CCLXVI.—*It has been suggested by some people in the local press that bones of poultry, game, rabbits, etc., are dangerous food for dogs. Others say that there is no danger. What are the views of the experts, and if dangerous what are the sites of damage and what is the appropriate treatment?*

A.(I)—While bone has a feeding value, chiefly owing to its marrow fat and calcium phosphate content, there is no doubt that in certain circumstances bones of all types can cause irritant or obstructive damage at various levels of the alimentary tract.

It has been argued that in nature the dog and cat would eat the bones of animals and birds safely, but it should be remembered that in this case any bone eaten would be well embedded in muscle tissue and probably also skin, thus minimising the effect of sharp abrasive edges of broken bone and reducing the danger of lodging of sharp or rough particles.

If large beef or horse marrow bones are not available, and it is desired to feed poultry or rabbit bone, this is best accomplished by first softening in a pressure cooker, then mixing in small amounts with other food.

Briefly, the common sites of damage and their treatment are as follows:

1. *The mouth*
   (*a*) The wedging of a sharp bony spicule between the upper carnassial and first molar.
   (*b*) The wedging of a flat bone, usually mutton rib, across the hard palate between the inner surfaces of the upper carnassials.

Treatment in both cases is by removal with dental forceps with or without anaesthesia according to the nervous temperament of the dog.

2. *The pharynx*

Portions of long poultry bone may become wedged across the pharynx, more commonly in the cat than the dog.

Treatment: removal by forceps under general anaesthesia.

3. *The oesophagus*

Bone obstruction usually by mutton vertebra, occasionally rabbit or poultry vertebrae or large chunks of cancellous bone, may occur.
   (*a*) In the neck in front of the first rib.
   (*b*) In the thorax over the heart.

This causes in both cases symptoms of immediate distress on swallowing solids and return of food, and if unrelieved will lead to death from starvation or septic mediastinitis.

Diagnosis is confirmed by gum elastic sound or endoscope under general anaesthesia, and treatment consists in removal via a pre-sternal oesophagotomy or crocodile forceps.

4. *The stomach and small intestine*

Obstruction of pylorus or small intestine by bone is rare. If occurring, the symptoms, diagnosis and treatment are as for any obstructive foreign body in these areas.

Irritation by sharp bone spicules is fairly common. Symptoms are those of acute gastritis, with or without haemorrhage, and probably a following enteritis.

Treatment is by demulcents and by the administration of water-absorbent soft bulk laxatives, *e.g.*, Vi-siblin or Iso-gel, aiming at surrounding the spicules with soft gelatinous bulk and preventing further damage to bowel wall during their passage.

5. *The large intestine*

Rectal impaction with masses of cancellous bone is common, particularly in the aged male dog with prostatic enlargement.

Immediate treatment consists in administration of water-absorbent bulk laxatives and/or removal of impaction by enemata of soap and water, liquid paraffin or glycerine.

Severe cases may require anaesthesia and breakdown with forceps.

Long-term treatment consists in reduction of the prostatic enlargement by castration or stilboestrol.

II.—In the writer's experience both raw and cooked bones of animals ordinarily used for human consumption often can be fed to dogs without evident untoward result. Further, it is not uncommon to meet the dog owner who admits or sometimes boasts of feeding bones indiscriminately and apparently without ill effect. On the other hand there seems to be ample evidence that any dog eating a bone can die as the result. The main danger seems to be in oesophageal obstruction by some irregularly shaped piece of bone too large or sharp to reach the stomach without being held up at some point. The fragment commonly becomes impacted at the entrance to the stomach, in a mid-thoracic position roughly adjoining the heart or at the end of the cervical portion just anterior to the first pair of ribs. The first site is probably the most usual. If the foreign body has a roughened or serrated surface, impaction is, of course, more likely and the oesophageal mucosa in contact can become seriously ulcerated in a few days. After diagnosis of oesophageal obstruction from clinical symptoms and confirmation by passage of a probe or endoscope under suitable anaesthesia, the bone fragment can sometimes be extracted by crocodile type forceps.

Care and a little experience in the use of such an instrument is a great advantage. The mid-thoracic impaction probably gives the most difficulty if the fragment is firmly held by the oesophageal wall but, whatever the situation, only gentle traction can be employed with reasonable safety. An endoscope with a dilatable extremity has been designed to facilitate this operation. Successful and easy removal of a bone fragment by this means from any part of the thoracic oesophagus may, however, be followed by septic mediastinitis and death.

The writer recommends penicillin prophylactically after most oesophageal foreign body manipulations. The badly impacted bone fragment at the stomach entrance which can neither be extracted *per os*, nor repelled into the stomach, may sometimes be removed by gastrotomy. This operation is a much more desirable course than prolonged manipulation with forceps *per os*. Low cervical oesophagotomy is sometimes employed as an aid to removal of an impacted foreign body with forceps but if the impaction is a thoracic one, there appears little or no advantage in this course. The bone fragment which can be grasped by crocodile forceps and withdrawn safely along the thoracic portion of the oesophagus will certainly present little difficulty in being withdrawn finally along the cervical portion.

In the writer's experience the bone which can be repelled into the stomach no longer causes serious disturbance. Occasionally, however, a dog will be seen suffering from acute proctitis caused by the presence of a sharp bone fragment. Impaction of the large colon with a collection of bone splinters or faeces, hardened by a high proportion of its composition being cancellous bone, is another frequent disorder met in dog practice and is probably best treated by anaesthetising the animal, carefully breaking down and extracting the mass with suitable forceps aided by lubricants and bowel irrigation.

Symptoms of a febrile gastritis, *i.e.*, vomition, inappetence, thirst and lethargy, are sometimes observed after a dog has eaten poultry bones or, in fact, any bones, and these symptoms often persist for about three or four days, after which the animal makes a spontaneous recovery. The writer has frequently observed this syndrome and believes it to be due to irritation and inflammation of the gastric mucosa, possibly indicating a sub-acute gastritis the *post-mortem* discovery of which, or any other form, is most unusual in the dog.

The danger of stomach or bowel perforation by bone fragments with subsequent peritonitis cannot be excluded but the incidence is very rare by comparison with impaction of the oesophagus and large colon.

Correspondence

Coprophagy in the Bitch

Sir,—In reference to the Question CCLX and its answer, whilst subscribing to the general opinion that coprophagia is difficult to alleviate, I have not found it entirely unresponsive to a mineral mixture of which I give the formula below.

I am particularly fond of prescribing it as a routine measure for puppy rearing in conjunction with any of the many mixed vitamin capsules now on the proprietary medicine market, *viz.*, "Abidon" (Parke, Davis & Co.), "Pentakaps" (Abbott), etc.

Ferric Ammon. Citrate	0·5046
KH_2PO_4	17·2712
K_2HPO_4	4·0733
$CaCO_3$	55·2962
$MgCO_3$	2·5458
$MgSO_4$	1·6293
NaCl	7·0202
KCl	11·4052
KI	0·0082
$MnSO_4$	0·0352
Alum	0·0171
Sodii Flouriere	0·1018
$CuSO_4$	0·0919
	100·0000

Yours truly,

79, St. Helens Road,
Leigh, Lancs.
September 7th, 1948.

F. G. Greer.

MINISTRY OF AGRICULTURE NEWS SERVICE

The Feeding of Cows Before Calving.—Efficient management of a dairy herd must include the keeping of a record of services and expected dates of calving, so that, when necessary, a cow may be dried off six weeks or so before she is due to calve. During this period extra food should be given, and the Feeding Stuffs Rationing Scheme now in force provides for a special issue of coupons for feeding-stuffs to supplement home-grown products.

Good clovery pasture is specially suitable as the basis of the ration; but when pasture is not available its place can be taken by good quality hay, with a good proportion of leguminous plants (rich in lime) and a moderate allowance of kale or roots. In addition to the bulky foods, an allowance of concentrates—cake, meal or grain—is very desirable. The concentrates may be the production ration given to the cows in milk, or palm kernel cake or coconut cake, given separately or mixed, or a mixture of linseed cake, oats and bran or balanced dairy cubes or cake. The daily allowance for six weeks or so before calving may range from 4 lb. to 6 lb. per head, or even more where the foods are available and the potential milking ability of the cow warrants it.

The possibility of replacing concentrates by good quality bulky foods has been investigated under war-time conditions. In-calf cows on a number of farms were arranged in three groups; in the six weeks before calving the first group was given 1½ cwt. concentrates per head; the second group was given silage, hay or kale of equivalent nutritive value, while the third group got no additional feeding and acted as a control. The results showed that the cows that got the concentrates gave, after calving, a maximum of 7 lb. more milk per day than the control group, whereas the cows receiving bulky foods gave a maximum of 3 lb. more milk per day. By observation it was also noted that the cows getting concentrates were fitter at calving.

Good herd management requires that in-calf cows should be brought into good condition, if possible, by feeding with suitable concentrates; but if these are not available, bulky foods of high quality and highly palatable will be definitely helpful.

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Weekly Wisdom

One person with a belief is a social power equal to 99 who have only interest.—John Stuart Mill.

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When an Essex farmer was summoned at Chichester for offering for sale 143 sheep without a declaration that they had been dipped, the prosecution stated that he was liable to a maximum fine of £715. He was fined 5s.

REVIEW

[**Index of Treatment.** By Hamilton Kirk, M.R.C.V.S. Pp. viii+774, with 154 illustrations. Baillière, Tindall & Cox, 7 & 8, Henrietta Street, London, W.C.2. Price 40s. net.]

There can be no question but that this book is a most valuable addition to the all-too-scanty literature available to the small-animal practitioner.

The book is divided into three sections, the first dealing with the various types of therapy available; this section includes chapters on actino-, radiant heat- and electro-therapy, matters which until now have received little or no attention from veterinary authors. Chemotherapy, the use of biological products, hormone preparations and vitamins are the next subjects to be dealt with, the remaining chapters of Part I being devoted to the barbiturates, antiseptics and anaesthetics.

Part II is an index of therapeutics, both disease entities and symptoms being dealt with in alphabetical order and adequately cross-indexed, enabling quick reference to any disease or symptom thereof to be a matter of the greatest ease. No one can doubt on reading this section that the author has covered the literature of many countries more than adequately in a very successful attempt to indicate all well-tried or well-recommended methods of treatment. While not attempting to be dogmatic on lines of treatment, he wisely indicates in some instances that certain measures have or have not proved valuable in his own hands. Dosage is indicated in all cases, and this is supplemented by a full posological table on page 695. The author, in discussing various drugs, has adopted the extremely useful, if somewhat unconventional, line of indicating certain proprietary preparations and the firms responsible for them; in the writer's opinion this should prove of great value to the busy practitioner in assisting him to a choice of preparations, and is a step to be commended.

The third section of the book deals with more general matters, including such chapters as "Handling and Restraint," "Nursing the Sick," "Euthanasia," etc., all subjects of everyday interest to the practitioner which yet again have received little attention in the literature before.

Minor quibbles there may be over certain recommendations, omissions or difference from accepted facts. Small examples are the omission of the extra-conjunctival method of eye enucleation, and the author's statement that ovulation in the bitch occurs 48 to 72 hours after acceptance of the dog; also the somewhat high dose of chloretone advised—but these are virtually trivial and in no way affect our very strong recommendation to students and practitioners alike to obtain this book as soon as possible. To have on the bookshelf a volume such as this to which one may turn on almost any problem of small-animal veterinary medicine is a boon which has been overlong delayed.

The book is well produced on good quality paper, and includes a large number of excellent illustrations.

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Foot-and-Mouth Disease:

Yorks, E.R.—South Cliff Farm, Hornsea, Yorks. (Sept. 21st).

Sheep Scab:

Cumberland.—Blitterlees Farm, Silloth, Carlisle, Cumberland (Sept. 18th).

Derby.—Park Hall Moor, Hayfield, Stockport, Cheshire; Hayridge, Ashopton, Sheffield (Sept. 18th); Ashes Farm, Derwent, Sheffield; Hill House, Kinder, Hayfield, Stockport, Cheshire; Barber Booth and Lady Booth, Edale, Sheffiield; Ivy Farm, Little Hayfield, Hayfield, Stockport, Cheshire (Sept. 20th).

Yorks. W.R.—Hoyles Farm, Bradfield Dale, Bradfield, Sheffield (Sept. 20th).

* * * * *

Viewing with concern the present rapid and indiscriminate slaughtering of young horses, Lancashire, Cheshire and Westmorland Conservative Area Council urged that the Government amend the Export of Horses Act, 1937, and the Knackers Act, 1786, and introduce legislation to include that all horses killed for human consumption should be certified by a veterinary surgeon as being unfit for further agricultural or other economic uses.

QUESTIONS IN PARLIAMENT

Worn-out Horses (Transport)

Mr. Shurmer asked the Minister of Agriculture if he is aware of public concern regarding suffering of horses in transit to slaughterhouses, namely, lack of food and water for long periods; and what steps will be taken to stop this suffering.

Mr. Stokes asked the Minister of Agriculture what arrangements he has made for the transport of worn-out horses during their journeys to slaughter for human consumption; and whether he is aware that horses are now being conveyed at the rate of 80,000 a year for this purpose.

Mr. Williams: I am aware that allegations have recently been made that horses have been kept on rail for long periods without food and water. Enquiries into specific cases made by my veterinary officers show that, in the main, these allegations are unfounded. I am sending a note on the subject to my hon. Friends together with a copy of the Exportation and Transit of Horses, Asses and Mules Order, 1921, which contains provision for the feeding and watering of horses and for the prevention of suffering during rail transit. I am satisfied that these requirements are generally being observed by the railway authorities. I have no information as to the number of horses conveyed for slaughter for human consumption.

Mr. Shurmer: While accepting the Minister's answer to a certain degree, is he aware that this racket is becoming very great in the slaughter of healthy horses, and that it is in the hands of certain people who are not caring one iota regarding the care of, and accommodation for, horses awaiting slaughter, and also for the feeding of horses during their journeys on the railways? Can he assure the House that his veterinary officers are taking complete notice of these facts, because this matter is becoming a scandal in this country?

Mr. Williams: I can assure my hon. Friend that whenever a case of cruelty during transit is brought to my notice it is immediately investigated by our veterinary officers, but, as I happen to be responsible only for the well-being of animals in the course of transit, that is the limit to which I have gone in my answer.

Mr. Stokes: While I feel somewhat reassured by the Minister's statement that certain specified cases have been looked into, does he appreciate the great number of horses involved, and will he assure the House that he will not wait for everybody to bring complaints before turning his inspectors on to the main spots where these evils take place? Surely, his Department must know them?

Mr. Williams: I can assure my hon. Friend that our inspectors are constantly in touch with the railway authorities, who are themselves responsible for the well-being of animals in transit.

Sir T. Moore: Now that we own the railways of the country, will the right hon. Gentleman take some steps to reassure public opinion and to make certain that the Government can avoid the charge of conniving at this most despicable practice?

Mr. Williams: The hon. and gallant Gentleman is trying to put words into my mouth which I have never uttered. I do not accept the allegations made by a person who writes for a living, whether he claims to be writing the truth or not.

Mr. Bechervaise: Is my right hon. Friend aware that many of these animals are in such a condition that they have to be slaughtered in the railway sidings?

Mr. Williams: That is entirely contrary to my information. I have the latest news from my inspectors, who are continually in consultation with the railway authorities.

Mr. Shurmer: Does my right hon. Friend suggest that the photograph of a horse, a mare and a foal standing together on bare stones was a faked photograph?

Mr. Williams: I do not suggest anything of the kind. All I can say is that my inspectors investigated the case written about in one of the Sunday newspapers, and they found that the allegations made in that article were utterly untrue.

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Horse Slaughter Yards (Inspection)

Sir J. Lucas asked the Minister of Health if he is satisfied that adequate inspection is made of conditions under which horses await slaughter in the East End of London; whether regular supplies of food and water are provided; and whether he will take proceedings in any case of neglect or maltreatment whether during the working week or over week-ends.

Mr. Bevan: My right hon. Friend has no reason to believe that the arrangements for reception of horses for slaughter are in general unsatisfactory, but he has asked the local authority for a report on the conditions at Plaistow about which he has received complaints. He has, himself, no power to take proceedings.

Slaughterhouses

Mr. Peter Freeman asked the Minister of Food how many slaughterhouses have been condemned as unsatisfactory but cannot be closed until new buildings are erected.

Mr. Strachey: I do not know whether any private slaughterhouses have been condemned by local authorities. Some of the slaughterhouses used by my Department are not altogether satisfactory, but I cannot say how many of them would be closed if new alternative premises could be built.

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At a later session, Mr. J. Lewis asked the Minister of Food if he is aware that the condition of many of the abattoirs throughout the country, taken over by his Department at the outbreak of the last war, is unsatisfactory, but that local authorities are reluctant to take active steps in the building of new abattoirs because of the uncertainty which exists owing to the failure on the part of the Government to make clear their plans for the future of the livestock industry; and if he will make a statement of his intentions in this matter.

Mr. Strachey: I am aware that the condition of some of the slaughterhouses used by my Department is not altogether satisfactory, but approval could not be given to any far-reaching programme for the rebuilding of slaughterhouses while labour and materials are needed for other more urgent work. In accordance with the statement I made on August 8th, 1947, a few local authorities are being encouraged to go ahead with plans for the erection of new slaughterhouses where present facilities are seriously inadequate and where a public slaughterhouse would clearly fit in with any likely long-term scheme. No final decision on future slaughtering policy can be taken until the Government's long-term food plans have been prepared.

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Illegal Slaughtering Offences

Mr. H. Thorneycroft asked the Minister of Food how many persons have been convicted of illicitly slaughtering or selling illicitly slaughtered meat during the past 12 months; and how many have been fined, have had their licences revoked, and have been committed to prison, respectively.

Dr. Summerskill: During the 12 months ended July 31st, 1948, 1,134 persons were convicted of illegal slaughter and allied offences: 1,089 were fined; 14 were imprisoned. In the case of 46 persons their licences were revoked.

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Milk Pasteurisation

Mr. J. Lewis asked the Minister of Health in view of the facts contained in the leaflet, a copy of which has been sent him, issued on July 30th on compulsory pasteurisation of milk by the National Anti-Vaccination League, how far he recommends pasteurisation as effective in preventing the spread of typhoid fever in those circumstances where untreated fresh milk might be the carrier.

Mr. Bevan: My information is that the cause of the Montreal outbreak mentioned in the leaflet was never definitely established. I am satisfied that efficient pasteurisation is effective in preventing the spread of typhoid fever in circumstances where untreated fresh milk might be the source of infection.

. . . . . .

Rabbit Diseases (Research)

Sir W. Darling asked the Minister of Agriculture what research work into virus and other diseases in rabbits is being undertaken in Britain.

Mr. T. Williams: Research into coccidiosis in rabbits and also into an obscure respiratory disease is being carried out at the Veterinary Laboratory of the Ministry of Agriculture and Fisheries, and a study of a digestive disturbance in rabbits, known as "blows trouble," is being made by the Harper Adams Agricultural College, Newport.

THE BRITISH ASSOCIATION HONOURS FARMING

The British Association for the Advancement of Science has elected Sir John Russell as its President for next year. "The election," says *The Farmers' Weekly*, "will be welcomed by everyone in the agricultural industry. On personal grounds it is a fitting recognition of a most distinguished scientific career extending over 50 years—30 of them as Director of Rothamsted—spent in the service of farming. It is also a recognition of the strides which have been made in agricultural science and the importance of it in the welfare of the country and, indeed, of the world. Agriculture ought no more to be the cinderella of the scientific world than of the industrial world."

NOTES AND NEWS

Diary of Events

Oct. 6th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 2.30 p.m.

Oct. 7th.—Meeting of the Central Veterinary Society at the Royal Veterinary College, 2 p.m.

Oct. 8th.—Institute for the Study of Animal Behaviour—Scientific Meeting in the lecture room of the Linnean Society, Burlington House, W., 3 p.m.

Oct. 14th.—Meeting of the Dumfries and Galloway Division, N.V.M.A., at Dumfries (Station Hotel), 2 p.m.

Oct. 15th.—Meeting of the Mid-West Division, N.V.M.A., at Bristol Berkeley Café, Clifton), 2.15 p.m.

Oct. 20th.—Meeting of the Section of Comparative Medicine, Royal Society of Medicine, 1, Wimpole Street, W.1, 5 p.m.

Oct. 21st.—Meeting of the Western Counties Division, N.V.M.A., at Exeter (Rougemont Hotel), 2 p.m

Oct. 21st.—Meeting of the South Eastern Division, N.V.M.A., at the Royal Veterinary College, Camden Town, N.W.1, 2.30 p.m.

Oct. 28th and 29th.—N.V.M.A. Conference on "Grassland and Animal Health," at the Wellcome Foundation, 183, Euston Road, London, N.W.1.

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N.V.M.A. Committees and Council

There will be Committee Meetings at 36, Gordon Square, W.C.1, on October 7th and 8th, as follows:—

October 7th.—2 p.m., Veterinary State Medicine Committee.

4.30 p.m., Parliamentary and Public Relations Committee.

October 8th.—10 a.m., Technical Development Committee's Sub-committee on Mastitis.

10 a.m., Organising Committee.

11.30 a.m., Home Appointments Committee.

2 p.m., General Purposes and Finance Committee.

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The next quarterly meeting of the Council of the Association will be held at the Connaught Rooms, Great Queen Street, Kingsway, W.C.2, on Wednesday, October 27th, at 11 a.m.

The above-mentioned date has been chosen to fit in with the N.V.M.A. Conference on "Grassland and Animal Health," and members of Council who propose to attend the Conference will need to book hotel accommodation for October 27th, 28th and 29th.

The programme of the Conference is published as an inset to this issue.

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N.V.M.A. Conference on "Grassland and Animal Health"

With this issue we are circulating to members, as an inset, a copy of the final programme of the N.V.M.A. Conference on "Grassland and Animal Health" to be held at the Headquarters of the Wellcome Foundation, 183-193, Euston Road, London, N.W.1, on October 28th and 29th. Attached thereto is a detachable slip, upon which members are requested to intimate their luncheon requirements, returning signed to the General Secretary not later than October 25th.

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Congress Paper—Some Observations on Canine Encephalitis

Several members have complained that the time available for discussion on the paper presented by McIntyre, Trevan and Montgomerie was quite inadequate and that they were thus precluded from making a contribution. In these circumstances, it has been decided that written communications will be accepted as part of the discussion, and as intimated in our last issue, members are invited to contribute by having the material they wish to present in the hands of the Editor by October 7th. These communications, together with the record of the meeting, will be placed at the disposal of the authors so that their reply may cover all the points raised.

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Jury Service

The Registrar, R.C.V.S., desires to draw the attention of all members of the Royal College who are in practice (that is who pay the annual registration fee) that under section 24 of the Veterinary Surgeons Act, 1948, no member of the Royal College shall, if actually practising Veterinary Surgery, be liable to serve on any Jury in England, Scotland or Wales.

If any member should receive a jury summons he should communicate with the Under-Sheriff, who has sent the summons, claiming exemption under the before mentioned section of the Act. If this claim is not accepted by the Under-Sheriff he should communicate with the Registrar.

In the future all practising veterinary surgeons should, on the making up of the Electoral Rolls, communicate with the appropriate authority and take measures to secure that their names are not placed on the list of those liable for jury service; much inconvenience may thereby be obviated.

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PERSONAL

Dr. J. T. Edwards' Egyptian Award.—Mr. F. E. Mason, formerly Sub-Director, Veterinary Service, and Director of the Veterinary Pathological Laboratories of the Ministry of Agriculture, Cairo, writes of the gratification afforded him, particularly in view of his long connection with the country, by the award of the Order of the Nile, third class, to Dr. J. T. Edwards by King Farouk of Egypt. It appears, however, that our references in the issues of July 10th and 17th require amendment in two particulars. This is not, as stated by an informant who was not immediately concerned, the first time this Order [third class] has been awarded to a British veterinarian, as Mr. Mason received it in 1918, while the late William Littlewood, then Director of the Veterinary Service, received the second class of the same Order, both from King Fouad 1st. for services rendered. Also the Order of the Nile does not carry with it the grade of Bey; in point of fact, the Order of the Nile, third class, is considered a higher award than the grade of Bey, third class.

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Franklin.—On September 10th, 1948, to Margaret (*née* Bryce) wife of R. D. Franklin, M.R.C.V.S., of "White Ladies," Merry Hill, Wolverhampton, a son (David Raymond), brother for Richard.

Hill.—At Hyde Terrace, Leeds, to Joan, the wife of R. L. Hill, M.R.C.V.S., twin daughters (Jennifer and Wendy).

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Marriage.—Stewart—Dunse.—On September 18th, 1948, at Nicholson Street Church, Edinburgh, James Stewart, M.R.C.V.S., to Ella Dunse. A. J. Porteous, M.R.C.V.S., officiated as groomsman.

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CONTAGIOUS ABORTION OF CATTLE

Agglutination Test Classification Changes

In connection with the classification of cattle following the application of the agglutination test for contagious abortion, the Ministry of Agriculture, having compared the results obtained with the standard antigen used in this country and the antigens in use in the Dominion of Canada, the Union of South Africa, and the United States of America, makes the following announcement:—

The Ministry has decided that where a blood agglutination test for *Brucella abortus* infection in cattle reveals no agglutination or agglutination at 1:10 dilution only the animal will be classed as having passed the test. If, however, at the time of first testing, agglutination occurs at a dilution of 1:20 but not at a higher dilution, the animal will be classed as an "indefinite reactor." Such an animal may be retested after an interval of 14 days and if it then gives an agglutination of 1:20 it will be classed as a reactor. If, however, agglutination occurs only at 1:10 or there is no agglutination at all, it will be regarded as having passed the test. An agglutination at a higher dilution than 1:20 will result in the animal concerned being regarded as having failed the test.

The Ministry is satisfied that animals which by these standards

are regarded as having passed the test in this country would, if they had been tested in other countries, have passed the test. "It must be borne in mind, however, that if an animal has been recently infected it may pass the test but, in a short time, such an animal would fail a further test."

The announcement concludes: "An owner who has an animal for which he requires a negative certificate should have it tested well in advance, *i.e.*, about four weeks before the certificate is required. It will then be possible if the result of the first test is indefinite for a second test to be carried out in the time available with a view to determining whether or not the animal is to be classified as a reactor."

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A.H.T. "BROWN JACK MEMORIAL FUND"

The Animal Health Trust announces that it is prepared to sponsor the opening of a Brown Jack Memorial Fund in memory of the great long-distance racehorse of that name which died on Wednesday of last week at the age of 24. Subscriptions will be devoted towards the extension of Equine Research Work at Newmarket.

Ridden mainly by Steve Donoghue, Brown Jack's popularity was equally unrivalled, for his grit and stamina. While his fame rests chiefly on his six consecutive victories in the longest flat race, the Queen Alexandra Stakes at Ascot, he won, among other long-distance events, the Ascot Stakes, the Goodwood, Doncaster and Chester Cups, and the Ebor Handicap. The British Museum has made a request for the skeleton, and its owner, Sir Harold Wernher, is making arrangements for it to be sent to London. Brown Jack's brain is also being preserved. Brown Jack has been at Lubenham, near Market Harborough, for 14 years.

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Since the Canine Liaison office of the Trust has been established, £2,317 has been raised for the Canine Research Station. At the recent Kensington show, £19 1s. 9d. was received in gifts.

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Among recent donations to the appeal to the poultry industry on behalf of research work to be undertaken by the Trust, are £500 from Thornber Bros., and £105 from Sterling Poultry Products.

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The Organising Secretary of the new Glamorgan County Committee of the Animal Health Trust is Mr. Richard A. Stratton, descended from the family which had so much to do with the development of the dual-purpose Shorthorn.

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WELSH DEMAND FOR VETERINARY TRAINING FACILITIES

The Association of Welsh Local Authorities at its triennial meeting on September 17th passed a resolution expressing "profound regret that Wales is not included alongside Bristol and Cambridge in the Veterinary Surgeons Bill recently passed."

The resolution, moved by Professor Share Jones, stated that "the claims of Wales are long standing and well known having on previous occasions been placed officially before Governments.

"It is, therefore, difficult to understand why Wales has been excluded at a time when the grave need for an increase in the number of veterinary educational institutions is at last frankly acknowledged.

"In view of the difficulties experienced by parents in providing suitable young men and women with careers which they can pursue with profit to themselves and the community, the withholding of facilities from Wales, which have for so long been enjoyed by the youth of England and Scotland, is regarded as a gross injustice.

"This association pledges its fullest possible support to those concerned in securing forthwith the provision of complete veterinary training facilities in Wales on a plane of equality with those provided in the other parts of Britain."

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PROFESSOR DALLING OPENS A.I. CENTRE

The Langford House Insemination Centre, Langford, Somerset, was opened on September 17th by Professor T. Dalling, the Chief Veterinary Officer of the Ministry of Agriculture and Fisheries, and farmers from a wide area attended.

This is the second large centre opened by the Somerset Cattle Breeding Centre. Since 1944, 43,860 cows have been inseminated from the Ilminster Centre. This new centre will be available to farmers in the North Somerset area, and it means they will have available for their dairy herds some of the finest bred bulls in the country.

There was a parade of the dairy Shorthorn, Friesian, Guernsey and Ayrshire bulls, and afterwards the company inspected the laboratory and bull pens.

The Farmers' Weekly reports that in opening the centre Professor Dalling gave a hint that at some time in the future the quality of the females concerned would have to receive consideration in the running of the artificial insemination scheme. Up to the moment artificial insemination had been largely concerned with the provision of good quality bulls. They looked forward to the time when more attention would be given to the females.

He continued: "Each year sees more and more calves being bred by this method and so far as we have gone we appear to be satisfied with the results. Although we in this country have been practising it to a considerable extent we are, of course, by no means the only country which has been carrying it out.

"As one who has to play a part in the safeguarding of the health of livestock in this country I welcome artificial insemination wholeheartedly from that point of view. The more we study livestock diseases the more do we see the risk of disease transmission by natural mating.

"There is no need to refer to these diseases individually. They exist and cause much damage. So far as the bull is concerned they can be entirely prevented by artificial insemination. I do feel that in this method we are preventing to a very large extent much of the disease which worried farmers in the past.

"Centres run by private enterprise like this one are valuable assets, and this district is fortunate in having such enterprising and public-spirited people."

Lt.-Colonel J. N. Horlick, who presided at the opening ceremony, said the idea of the centre was first mooted by Mr. Sidney Wear, the well-known Somerset farmer, about two and a half years ago, and with the help of Bristol University, they had been able to set up the centre at Langford House.

CORRESPONDENCE

Correspondents are requested to write as briefly as possible

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

UNICORNUAL BOVINE TRIPLETS

Sir,—It may interest your readers to hear that I was called upon to remove the placentae from a cow which produced triplets. All three foetuses were accommodated in one horn of the uterus, the second horn showing no evidence of cotyledons whatsoever. Conception had not been assisted by artificial means (*i.e.*, pregnant mare's serum).

Yours faithfully,

"Parklands," P. T. Heath.
Bradninch, Devon.

September 21st, 1948.

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THE SLAUGHTERING OF ANIMALS

Sir,—In reply to Col. Rainey's letter in your issue of September 25th, 1948, I wish to state that my original letter was intended only to call attention to the fact that certain regulations intended to minimise terror among animals awaiting slaughter, are founded on false premises, and in fact actually increase it. I had no intention of advocating pithing or any particular method of slaughter, as this is better treated as another subject.

I feel bound, however, to indicate that most of Col. Rainey's objections to pithing are applicable to any form of slaughter, if it is carried out haphazardly. I can assure him that there is no need to learn pithing by "trial and error" on living animals as the correct method can be taught without cruelty and thereafter insisted on. Careless shooting will result in cruelty quite as revolting as careless pithing, but carelessness should never be tolerated.

Yours faithfully,

London County Council, Roderick Macgregor.
Smithfield College of Food Technology,
Eagle Court,
St. John's Lane, E.C.1.

September 27th, 1948.